2012 Local Groundwater Assistance Grant Program Application

Attachment 9. Past Performance

Preparation of a Salt and Nutrient Management Plan for the Northern Cities Management Area and the Nipomo Mesa Management Area of the Santa Maria Groundwater Basin

City of Arroyo Grande

July 13, 2012

Attachment 9. Past Performance

Performance Description

The City of Arroyo Grande routinely delivers high quality work and effectively manages project funds and schedules. The City has also been very successful in procuring and delivering numerous grant funded projects from various funding agencies.

An example most comparable to this proposal is the South San Luis Obispo County (SSLOC) Desalination Funding Study funded through the California Department of Water Resources (DWR), Proposition 50, Chapter 6(a) Water Desalination Grant Program – 2006 Funding Cycle. The project proposal stated that it was anticipated the SSLOC Desalination Funding Study would be completed in approximately six (6) months, and the total cost of the project would be $100,000.

A kickoff meeting was held in October 2007, and the start date of contract between the City and DWR began in November 2007. In March 2008, the City submitted a request for extension because the initiation of the study was going to occur later than originally anticipated due to two primary factors: (1) additional time needed for state and local regulatory agency review, which included the California Coastal Commission; and (2) additional time needed for coordination of the interagency agreements between the three agencies involved in the preparation of the study, and approval of these agreements by the respective Boards/Councils. A revised date of February 29, 2009 was awarded.

The final SSLOC Desalination Funding Study was delivered to the stakeholders and DWR in September 2008, and the final report was published in October 2008. The final expenditures for the project were $99,664.94. The City was able to accomplish the project within the project budget and in advance of the revised timeline.

Other recent examples of the City's success in delivering grant funded projects through other agencies are shown in Table 1. In all instances, the City was successful in delivering the projects within the grant required timelines and within programmed budgets.

Table 1. Example of Other Grant Funded Projects Delivered by the City

Program	Project Title	Project Description	Amount	Project Dates	Delivery Status
State Highway Account (SHA) – *Regional*	Bicycle/Pedestrian Master Plan	Bicycle and Pedestrian Master Plan	$15,000	Studies – Jan 2012-Present	On-going; Currently on schedule and within budget
State Highway Account (SHA) – *Regional*	Brisco/101 Interchange	Interchange Improvements	$482,320	Project Development – Mar 2005-Current	On-going; Currently on schedule and within budget

Program	Project Title	Project Description	Amount	Project Dates	Delivery Status
Transportation Enhancements (TE) – *Federal* State Highway Account (SHA) – *Regional* State Highway Account (SHA) – *Urban*	El Camino Real	Sidewalk/ Bicycle Lane Installation; Retaining Wall Installation; Park-and-Ride Expansion; Utilities Installation; Pavement Rehab	$349,000 $225,000 $311,933	Design – Dec 2008-Jul 2009 Construction – Jul 2011-Jul 2012	Within programmed budget and schedule
Transportation Enhancements (TE) – *Federal*	Castillo Del Mar	Bicycle Path Installation	$150,000	Design – Mar 2011-Sep 2011 Construction – Jan 2012-Apr 2012	Within programmed budget and schedule
Transportation Enhancements (TE) – *Federal*	South Elm Street	Sidewalk and Bicycle Lane Installation	$85,000	Design – Oct 2008-Apr 2009 Construction – Sep 2010-Jan 2011	Within programmed budget and schedule
American Recovery and Reinvestment Act of 2009 (ARRA) – *Federal*	West Branch Street	Street Rehabilitation	$525,000	Design – Dec 2008-Oct 2009 Construction – Jul 2010-Dec 2010	Within programmed budget and schedule
Transportation Enhancements (TE) – *Federal*	Tally Ho Road	Sidewalk Installation	$179,000	Design – Jan 2010-May2010 Construction – Oct 2010-Dec 2010	Under programmed budget; within programmed schedule
Service Authority for Freeways and Expressway (SAFE) – *Regional* State Highway Account (SHA) – *Urban* State Highway Account (SHA) – *Regional*	East Branch Street	Streetscape Improvements	$120,000 $11,200 $153,605	Design – Jan 2007-Sep 2008 Construction – Feb 2009-May 2010	Under programmed budget; within programmed schedule
Safe Routes to School (SR2S) – *State*	Paulding Middle School Sidewalks	Sidewalk Installation	$308,610	Design – Oct 2008-Apr 2009 Construction – Jul 2009-Apr 2010	Within programmed budget and schedule

Appendix 9-1. DWR Water Desalination Grant Project Proposal (As Funded)

F-2006-01

Grantee: **City of Arroyo Grande**
Entity Type: **City**
Project Title: **South San Luis Obispo County Desalination Funding Study**
Project Type: **Feasibility Study - Seawater**

Total Project Cost: **$90,000**
Requested Funds: **$45,000**
Awarded Grant: **$45,000**

Assembly District: **33**
Senate District: **15**
Congressional District: **22**
County: **San Luis Obispo** City: **Arroyo Grande**
Latitude: **35 06 02 N** Longitude: **120 37 27 W**

Project Summary:

Three public water agencies, each located in the Southern portion of San Luis Obispo County (SSLOC), have identified the need for a supplemental water source to enhance the reliability of their existing water supply. The City of Arroyo Grande, City of Grover Beach, and the Oceano Community Services District, henceforth the Stakeholders, have performed several preliminary water supply studies. Findings from these studies have shown that a new water source will be required to meet the Stakeholders projected water demands. Results of these preliminary feasibility studies have also shown that the most cost-effective and viable alternative for additional potable water in the South San Luis Obispo County area appears to be seawater desalination. In order to further evaluate the viability, and advance towards design, of a desalination facility to serve the SSLOC water agencies, the Stakeholders have committed to performing a Seawater Desalination Funding Study. The main objectives of the SSLOC Funding Study include preliminary design of the desalination facility, which would then be used to renovate the proposed cost estimate of the project. In addition, the Funding Study would refine previous efforts to outline regulatory and environmental issues associated with seawater desalination, while outlining other possible funding sources, such as construction grant funding or low interest loan programs.

The implementation of a seawater desalination facility for the SSLOC agencies will be designed to supplement the existing water supply and conservation methods currently being utilized by the Stakeholders. While water recycling and conservation efforts are continually being evaluated and performed by the Stakeholders, projected water demand at build out will far exceed the quantity of water saved through conservation. The seawater desalination project will be designed to meet the Stakeholder's deficiency without producing an excessive amount of water that might be construed as growth-inducing. In addition, providing a seawater desalination facility on the Central Coast will result in some of the highest quality water in the State due to the state-of-the-art treatment technologies utilized in seawater desalination facilities. The proposed SSLOC Funding Study will involve the following task objectives:

Preliminary Design - Develop overall design criteria for all components of the desalination plant, intake facility, brine disposal, and product water delivery systems. This section will include a hydrogeologic assessment of the area where the proposed intake facility will be located. The hydrogeologic assessment will also be used to determine the chemical make-up of the source water to assist with the design of the membranes in the reverse osmosis filter system. Additional tasks under the preliminary design include:

- *Design of the seawater intake facility and pipeline*. This design should include an evaluation of several viable intake structures (brackish water wells, beach wells, or open intakes) to determine the best-fit alternative.
- *Design of reverse osmosis filter system*. This design should include further analysis of the various desalination reverse osmosis filter technologies available.

- *Detailed review of ocean outfall.* The funding study should provide a detailed analysis of the capacity constraints, impacts to permitted dilution ratios, and an assessment of the need for a brine equalization tank prior to discharge.
- *Design of the product water distribution system*. The funding study should look into the details of each agency's water distribution system to determine the best location for tie-in to receive desalination product water.
- *SSLOCSD WWTP site analysis*. The funding study should also include correspondence with the SLO County Planning Department to outline the specific requirements for the planning, design, and construction issues in order to obtain a construction/building permit for the desalination plant at the SSLOCSD WWTP location. The site analysis should also address specific design and construction considerations needed for building within a flood plain.

Regulations and Permitting

- The Funding Study will further define and identify specific requirements for obtaining regulatory permits. The Funding Study will provide the necessary information to better understand the regulatory permit process. Understanding the permit process will be a key aspect of viability and implementation of this project.
- The Funding Study will prepare the agencies for most of the issues that will be evaluated as part of the environmental impact review (EIR) process.

Cost & Funding Update

- Refine capital, O&M and life cycle cost of recommended project. Based on this information, respective agencies may prepare rate studies to determine potential rate impacts to customers.
- Prepare and update implementation schedule, including permitting issues.
- Identify potential sources for additional funding.

It is anticipated that the SSLOC Funding Study will be completed in approximately six months and the total cost of the project is expected to be $100,000, including administrative costs. While it is expected that the SSLOC Funding Study will be available in a public competitive bidding process, a qualified team of engineering consultants has been selected to perform the SSLOC Funding Study. The selected team includes Wallace Group, a local qualified engineering firm to perform the majority of the preliminary design and cost update, with assistance from Cleath & Associates, a hydrogeologic specialist, and Boyle Engineering, to assist with the specific design of seawater desalination technology.

Some of the most important benefits of preparing the SSLOC Desalination Funding Study are to determine the viability of constructing a seawater desalination facility on the California Central Coast while maintaining the Stakeholder's commitment to economical and environmentally sensitive design. While previous studies have been prepared and recommend seawater desalination as the most viable alternative for supplemental water supply to the South San Luis Obispo County water agencies, a more in-depth analysis is crucial in determining the preliminary design and cost of the proposed facility. The SSLOC Funding Study will be used as a stepping stone to complete design of a SSLOC desalination facility.

Appendix 9-2. DWR Water Desalination Grant Final Project Report

Proposition 50, Chapter 6(a) - Water Desalination Grants
Project Final Report
Date of Report: January 15, 2009

Agreement Number: 4600007611

DWR ID Number: F-2006-01

Subject: Prop 50 II Desal F-01 46-7611 Arroyo Grande

Section 1: Project Information

Project Type	Feasibility Study – Seawater
Project Title	South San Luis Obispo County Desalination Funding Study
Start / End Dates	October 1, 2007 / February 28, 2009
Grantee Information	City of Arroyo Grande PO Box 550 Arroyo Grande, CA 93421
Partners	City of Grover Beach (cost-sharing) Oceano Community Services District (cost-sharing)
Contact Person Information	Mr. Don Spagnolo, P.E. Director of Public Works/City Engineer City of Arroyo Grande Public Works Department PO Box 550 Arroyo Grande, CA Phone: 805-473-5440 Fax: 805-473-5443 Email: dspagnolo@arroyogrande.org
Grant Awarded	$45,000
Total Cost of the Project	$99,664.94

Section 2: Executive Summary

Brief Summary of the Project

Preparation of a South San Luis Obispo County (SSLOC) Desalination Funding Study (Study) to determine the viability of constructing a seawater desalination facility on the California Central Coast while maintaining the three agencies' commitment to economical and environmentally sensitive design.

Purpose of the Project

The Study was to provide a more in-depth analysis than previous studies in determining the preliminary design and cost of the proposed facility. The Study will be used as a first step to complete design and implementation of a SSLOC seawater desalination facility.

Short Description of Main Findings/Accomplishments

In general, it appears technically feasible to construct a desalination plant at the South San Luis Obispo County Sanitation District (SSLOCSD) Wastewater Treatment (WWTP) with a 2,300 acre-feet per year (AFY) capacity.

Section 3: Goals and Objectives of the Project

The goal of the Study was to further evaluate the viability and advancement towards the design of a desalination facility to serve the SSLOC water agencies. The main objectives of the Study include preliminary design of the desalination facility, which would then be used to refine the proposed cost estimate of the project. In addition, the Study would clarify previous efforts to outline regulatory and environmental issues associated with seawater desalination, while outlining other possible funding sources, such as construction grant funding or low interest loan programs.

Section 4: Project Implementation

Describe project tasks/activities, implementation methods, procedures.

Tasks objectives/activities anticipated were:

- Preliminary Design – Develop overall design criteria for all components of the desalination plant, intake facility, brine disposal, and product water delivery systems
- Regulations and Permitting – Further define and identify specific requirements for obtaining regulatory permits.
- Cost and Funding Update – Refine capital, operations and maintenance (O&M) and life cycle costs.

Refer to the initially proposed project tasks and planned activities and outline those that were implemented. Likewise, outline those that were not implemented and explain the underlying reasons thereof.

All project tasks/activities were accomplished. For Preliminary Design, overall preliminary design criteria for the following components of the desalination plant were accomplished:

- Hydrogeologic Assessment – Identified the quantity and quality of available source water for the proposed facility.
- Seawater Intake Facility – Evaluated alternatives for intake source water methods and provided preliminary design of a seawater beach well gallery intake facility.
- RO Filter System – Provided evaluation of the proposed filter system, including percent recovery, brine rejection rates and concentrations, pre- and post-treatment and other process considerations.
- Ocean Outfall & Brine Disposal System – Provided detailed analysis of the capacity constraints, impacts to permitted dilution ratios, and assessment for need of a brine equalization tank.
- Product Water Distribution – Outlined the location for each agency to receive desalination product water. This task also included the cost-benefit analysis of distributing water directly to each agency or extending product water piping to the closest water storage reservoir.
- Site Analysis – Outlined the specific requirements for the planning, design, and construction issues in order to obtain a construction/building permit for the desal plant at the SSLOCSD WWTP location.

For Regulations & Permitting, the study defined and identified the specific requirements needed to obtain regulatory permits pertinent to the construction, installation, and operation of a seawater desalination plant on the California coast.

For the Cost and Funding Update, the study included a life-cycle cost analysis for the capital and operations and maintenance costs of the project. In addition, an approximate schedule and timeframe of major project milestones were included. Identification of potential funding opportunities was also included. Following the life-cycle cost analysis, the report evaluated the potential increase in monthly water rates for each Agency's water customers.

Section 5: Project Results

List/describe the results that were obtained from the activities illustrated above. Assess the success of meeting each objective identified in the proposal, as initially approved or later modified. Present your project results in an accessible way. (Tables, graphs and other figures representing your data are excellent ways to summarize data and present them.)

In general, it appears technically feasible to construct a desalination plant at the SSLOCSD WWTP with 2300 AFY capacity. Key issues that may provoke concerns or may significantly limit the proposed project capacity include:

Intake System - Acceptability. The intake system that is selected will need to minimize site disturbance, environmental impacts, and visual impacts in order to be accepted by the public and by resource protection agencies.

Intake System – Capacity. The capacity of each intake well or other intake system is a critical factor. The lower the capacity of each intake, the more intakes will be required. Firm yield will need to be confirmed through pilot studies and actual pump tests.

Space Available. It is possible to fit the facility into the space currently set aside for this purpose, but higher construction costs are expected because the microfiltration and RO facilities will need to be placed on top of the brine storage tank. The existing WWTP and future planned upgrade leave a very defined footprint for the desalination project.

Outfall Capacity. The capacity of the SSLOCSD WWTP outfall is a key constraint on the capacity of the desalination facility. If the outfall's permitted capacity can be increased, either through demonstration of existing hydraulic capacity or by improving the outfall, it may be possible to reduce the cost of some of the components of the proposed desalination facility (particularly brine storage).

There are several aspects of the proposed project that, while not only technically feasible, also meet one of the initial project goals of outlining a project that will provide a drought proof supplemental water supply to the three separate water agencies while minimizing environmental impacts.

Utilizing the existing wastewater treatment plant, which is not visible from the beach and is located within a highly developed area, helps to ensure the Oceano coastline will remain as pristine and beautiful as it is today. In addition, utilizing the existing wastewater treatment plant ocean outfall for disposal of rejected brine from the desalination treatment process not only minimizes environmental impacts of constructing a new brine outfall, but also reduces the overall cost of the project while providing a means for mixing the wastewater effluent with higher TDS brine water to produce a discharge that is closer in composition to that of the receiving water (the ocean).

While it is likely necessary that the source water intake infrastructure be located along the beach, measures can be made to ensure visibility, safety, and accessibility of the wells do not impede on current beach utilization and value. The raw water pipeline alignments have some, although not insurmountable, environmental concerns. The recommended mitigation measures for the pipeline alignments seem reasonable, and therefore do not present a "deal breaker" for the project as a whole.

Based on the cost estimates, and corresponding projected increase to monthly water bills for the proposed project, it is recommended that each agency carefully consider their need for water and, similarly, their need for this project. It is likely this project will require more than 8 years for final design, approval, and construction. However, the need for potable water in California is an ongoing concern, one that each water Agency should be prepared to deal with in the very near future. The proposed desalination project provides an independent drought proof water supply that will increase each Agency's potable water portfolio, and will help continue to support their respective communities with water at reasonably competitive rates in an unknown and ever changing potable water market.

If applicable, provide desalinated water capacity achieved and the associated unit costs.

Each Agency identified their desired allocation of produce water from the desalination facility. The total capacity of the desalination plant will be 2,300 acre-feet per year (AFY), with each agency's share in the plant capacity as follows:

- City of Arroyo Grande - 750 AFY
- City of Grover Beach - 800 AFY
- Oceano CSD - 750 AFY

The monthly impact was determined for each High and Low Cost alternative, while also providing a range in dollar terms of what the impact may be based on the combination of minimum and maximum financing options.

The following summarized comparison shows that a single-family residence (SFR) Arroyo Grande customer could experience an increase in their monthly bill between $13.53 and $25.18 per month. For a Grover Beach SFR customer, the monthly bill could increase between $20.74 and $38.65 per month. Oceano's SFR customers could see an increase between $45.34 and $85.67 per month.

	Low Cost Alternative		High Cost Alternative	
	Min	Max	Min	Max
• City of Arroyo Grande per SFR	$13.53	$15.19	$23.19	$25.18
City of Arroyo Grande per Ccf	$ 0.90	$ 1.01	$ 1.54	$ 1.68
• City of Grover Beach SFR	$20.74	$23.28	$35.72	$38.65
City of Grover Beach per Ccf	$ 1.73	$ 1.94	$ 2.98	$ 3.22
• Oceano CSD SFR	$45.34	$50.70	$77.49	$85.67
Oceano CSD per Ccf	$ 3.49	$ 3.90	$ 5.96	$ 6.59

Section 6: Dissemination / Outreach Activities

Describe the type of outreach performed, including presentations of the project to the public, conferences, workshops, coordination with various stakeholders, tours, and ways used to disseminate project results and information.

All meetings included representatives from the three stakeholder agencies and consultant team members. Project development included meetings with representatives from the County of San Luis Obispo, California Coastal Commission and California Department Public Health.

Technical memorandums and the draft Study were submitted to the three stakeholder agencies for review and comment. The Study was submitted to the three stakeholder agencies in September 2008 for presentation to their Councils/Board and public review.

Section 7: Project Deliverables

List of deliverables and materials produced during your project (publications, brochures, manuals, posters, patents, technology licensing, audio or audio-visual media, CD-ROM, website...).

- Meeting minutes from October 2007 kick-off, February, March, April and May 2008 progress meetings.
- Technical memo to stakeholders with project update and design criteria in May 2008.
- Draft Study submitted to stakeholders in August 2008.
- Study submitted to stakeholders in September 2008.

Please submit copies of such deliverables whenever possible.

A copy of the South San Luis Obispo County Desalination Funding Study dated October 2008 is attached.

Section 8: Conclusions / Lessons Learned

Discuss the results of the project, encountered problems, and lessons learned. If possible include recommendations for future similar work and potential practical applications of the results.

In general, it appears technically feasible to construct a desalination plant at the South San Luis Obispo County Sanitation District Wastewater Treatment with a 2,300 acre-feet per year capacity. There were no substantial problems encountered or lessons learned. This Study will be used as a first step to complete design and implementation of a South San Luis Obispo County seawater desalination facility.

Section 9: Final Financial Statement

Include pertinent budget information including comparison of actual expenditures with the original spending plan. Include expenditures from the grant funds as well as the local share.

Original Spending Plan

Prop 50 Grant Funds:	$ 45,000
Local Funds:	45,000
Total Project Cost:	$ 90,000

Actual Spending Plan

Prop 50 Grant Funds:	$ 45,000
Local Funds:	54,665
Total Project Cost:	$ 99,665

Actual Expenditures	Total	State	Local
0400 – Management Services	$ 4,858.16	$ 2,429.08	$ 2,429.08
0420 – Meetings	1,380.50	690.25	690.25
0445 – Subconsultant Studies	68,812.34	29,573.70	39,238.64
0610 – Water Treatment Eng	24,613.94	12,306.97	12,306.97
Total	$ 99,664.94	$ 45,000.00	$ 54,664.94